Future Job Growth Will Benefit Educated Workers Most

Nonmetro areas have disproportionately more workers in industries and occupations with projected slow or negative growth by 2006. However, a large share of nonmetro workers are in sectors and occupational groups that are expected to grow at least moderately.

Jobs in most occupational groups and industries are expected to grow between 1996 and 2006, according to projections released by the Bureau of Labor Statistics (BLS). The largest gains are expected to be in the services industry and the fastest growing occupations are those that require at least an associate's degree. Although BLS does not forecast separate employment trends for metro and nonmetro areas, the BLS projections can provide some indications of the job picture for rural areas. Nonmetro areas have disproportionately more workers in industries and occupations with projected slow or negative growth. However, a large share of nonmetro workers are in sectors and occupational groups that are expected to grow at least moderately. Nonmetro areas have a smaller share of workers in the occupations projected to grow the fastest—those requiring higher levels of education. In addition to net employment growth, BLS projects that jobs will become open at all levels of training and education due to replacement needs.

Services Industry Will Continue Rapid Expansion

By 2006, BLS projects that 18.6 million jobs will be created, bringing the number of U.S. jobs to 151 million. A look at jobs by *industry* indicates that nearly all of the expected new jobs will be in the services industry, with large growth projected in health services; business services, including personnel supply services (temporary help services); social services, including residential care and child care; and engineering, management, and related services. These four industries together are expected to produce half the new jobs in the economy by 2006.

Agriculture, forestry, and fishing, still an important employer in some nonmetro areas, is expected to have stable employment—only a 1-percent decline in jobs is projected. However, BLS projects production agriculture to lose 253,000 jobs, 11 percent, by 2006. This employment decline is due to continued technological improvements. Despite employment losses, real output in production agriculture is expected to increase 1.5 percent annually as a result of improvements in agricultural productivity. Agricultural services, however, are expected to add 240,000 jobs (18 percent) by 2006, with strong gains in landscaping and horticultural services.

This projected change in the composition of agricultural, forestry, and fishing employment continues the trend seen since 1986. Between 1986 and 1996, employment in production agriculture declined by 6 percent (147,000 jobs), while agricultural services, including landscaping and horticultural services, increased by almost 60 percent (490,000 jobs). The net result, including a loss of 29,000 jobs in forestry, fishing, hunting, and trapping, was about a 10-percent increase in employment in the agriculture, forestry, and fishing industry.

Mining is expected to decline by almost one-quarter to only 443,000 jobs due to productivity gains and increased reliance on foreign oil. Although mining employs relatively few workers in the U.S. labor force, it is an important employer in some regions of the United States, especially in the rural West, because it provides high-wage jobs.

Construction jobs are expected to increase due primarily to public investment in infrastructure, with growth in residential construction softening from slowing population growth. Manufacturing is expected to show strong output growth and productivity gains, but continued declining employment. Despite a projected growth of 2.4 percent annually in real manufacturing output, jobs are expected to decline by 350,000. Although employment in the Federal Government is expected to decline, overall public sector employment is expected to increase. Most of the increase is in education jobs in response to the growing school-age population.

A large share of nonmetro workers are employed in industries expected to grow by 2006. Among the projected growth industries, nonmetro areas have about the same proportion of

employment as do metro areas, except for the services industry. In 1996, only 23 percent of nonmetro jobs were in services compared with 32 percent of metro jobs (table 1). However, nonmetro areas currently have disproportionately more workers in the three industries expected to see job losses—agriculture, forestry, and fishing; mining; and manufacturing. Manufacturing in particular is an important employer in rural areas, accounting for 16 percent of total nonmetro employment. The two slow-growing industries, construction and government, are also disproportionately nonmetro.

Table 1

Industry and occupation employment

Employment to shrink by 2006 in agriculture, forestry, and fishing industry, but to grow slowly in the agriculture, forestry, and fishing occupations

Industry and occupation	Share of total employment, 1996		National job growth/decline	
	Nonmetro	Metro	1986-96	1996-2006*
Industry:			Percent	
Agriculture, forestry, fishing**	9	2	10	-1
Mining	1	***	-26	-23
Construction	6	5	12	9
Manufacturing	16	12	-3	-2
Transportation, communications, utilities	4	5	19	14
Wholesale trade	3	5	13	12
Retail trade	17	17	21	10
Finance, insurance, and real estate	5	8	10	11
Services	23	32	50	33
Government	16	14	16	9
Total employment	100	100	19	14
Occupation:				
Executive, administrative, and managerial	10	15	28	17
Professional specialty	11	16	34	27
Technicians and related support	3	3	24	20
Marketing and sales	10	13	27	16
Administrative support occupations, including clerical	12	15	15	8
Service occupations	14	13	22	18
Agriculture, forestry, fishing, and related occupations	7	2	3	1
Precision production, craft, and repair	13	10	4	7
Operators, fabricators, and laborers	20	13	10	8
Total employment	100	100	19	14

*Projected; assumes GDP annual growth of 2.1 percent. ** Includes farm and agricultural service industries. *** Less than 0.5 percent.

Source: Calculated by ERS using Bureau of Economic Analysis, U.S. Department of Commerce data and Current Population Survey data; projections from Bureau of Labor Statistics, U.S. Department of Labor, *Monthly Labor Review*, November 1997.

Occupational Growth Will Be Strongest in Professional Specialty and Service Occupations

Projections also indicate that U.S. employment in all major *occupational groups* is expected to increase. BLS projects that professional specialty occupations, which have high educational attainment requirements, and service occupations, which have low-skill requirements, will generate half of the total job growth. Among professional specialty occupations, the largest gains are expected for teachers, librarians, and counselors; for computer, mathematical, and operations research occupations; and for health assessment and treatment occupations. Employment in service occupations is expected to be mainly in food preparation and service, cleaning and building service, protective service, and personal service (such as hairdressers, home health aides, and child care workers).

The other occupational groups with expected above-average growth are executive, administrative, and managerial and marketing and sales. Although management jobs are projected to increase, it will be at a slower rate than during 1986-96 primarily due to the reduced use of middle-level managers. The increase in marketing and sales jobs is linked to the expected increases in employment in the wholesale and retail trade industries.

Employment in the two occupational groups—precision production, craft, and repair and operators, fabricators and laborers—associated with the manufacturing and construction industries, is expected to increase but at a lower-than-average rate. Gains are expected among mechanics, installers, and repairers; construction trades workers; blue-collar worker supervisors; plant and system occupations; transportation and material moving machine and vehicle operators; and helpers, laborers, and material movers. Along with the projected decline in employment in the manufacturing industry is a projected decline of 38,000 jobs in precision production occupations.

The agriculture, forestry, fishing, and related occupational group is expected to grow by 37,000 jobs. Although job losses are expected for farm operators and managers, especially self-employed farmers, and for farmworkers, these losses will be more than matched by gains in gardening, nursery, and greenhouse/lawnservice occupations. The higher growth rates of other occupational groups, however, will mean that agriculture, forestry, and fishing occupations' share of total employment will decline to 2.5 percent in 2006—down from 2.9 percent in 1996 and 3.3 percent in 1986—making this occupational group the smallest in the economy.

Rural areas have a larger share of workers employed in occupational groups expected to have the least employment growth—agriculture, forestry, fishing, and related occupations;

Classifying by Industry and Occupation

The Bureau of Labor Statistics classifies jobs in two ways. An *industry* classification identifies the sector that employs a worker, while *occupation* designates a type of job. For example, the agriculture, forestry, and fishing industry includes crop production; livestock production; agricultural services (for example, crop services, veterinary services, farm labor and management, and landscaping); forestry; and fishing, hunting, and trapping. Agriculture, forestry, fishing, and related occupations include animal breeding and training; animal care; veterinary assistance; farm work; farm operation and management; farming and forestry supervision; forestry and logging; gardening, nursery, and greenhouse/lawnservice occupations; gardening and groundskeeping; and fishing, hunting, and trapping.

For any given job, the industry designation does not necessarily coincide with the occupation classification. A worker in an agricultural occupation may actually work outside the agricultural industry, while a worker in a nonagricultural occupation may work in the agricultural industry. For example, an accountant—an occupation classified as executive, administrative, and managerial—who works for a farm operation would be classified in the agricultural industry. Along the same lines, a farmworker—an agricultural occupation—employed on a farm is in the agricultural industry, while a groundskeeper—also an agricultural occupation—employed by an automaker is classified as part of the manufacturing industry.

precision production, craft, and repair occupations; and operators, fabricators, and laborers. The only slow-growing occupational category that currently has a larger share of metro than nonmetro workers is administrative support, including clerical occupations.

The five occupations expected to generate the most new jobs by 2006 are cashiers, systems analysts, general managers and top executives, registered nurses, and retail salespersons. These five occupations together account for about 6 percent of nonmetro employment versus a metro share of 8 percent. The five occupations expected to lose the most jobs are sewing machine operators, garment; farmers; bookkeeping, accounting, and auditing clerks; typists and word processors; and secretaries, except for legal and medical secretaries. About 6 percent of nonmetro workers are in these jobs versus 5 percent of metro workers. These declines are due to technological advances, organizational changes, or factors other than industry employment declines.

Slower Growth in Low-Skill Occupations

Average employment growth is expected to be fastest in occupations requiring at least an associate's degree (table 2). Occupations requiring only short-term on-the-job training (up to 1 month) are the largest education and training category, currently comprising about one-third of all jobs. Employment in these occupations is projected to grow slightly less than average, 13 percent during 1996-2006. This category primarily includes operators, fabricators, and laborer occupations, and administrative support occupations, including clerical. Of the five occupations expected to generate the most new jobs by 2006, discussed above, three require at least an associate's degree, whereas cashier and retail salesperson jobs require only short-term on-the-job training.

Table 2
Education and training category employment
The fastest growing occupations are those requiring an associate's degree or higher

Education and training categories	Share of employment, 1996		National job growth, 1996-2006
	Nonmetro	Metro	
		Percent	
First professional degree	1	2	18
Doctoral degree	1	1	19
Master's degree	1	1	15
Work experience plus bachelor's or higher degree	7	10	18
Bachelor's degree	10	15	25
Associate's degree	2	3	22
Postsecondary vocational training	7	7	7
Work experience in a related occupation	12	10	12
Long-term on-the-job training	14	9	9
Moderate-term on-the-job training	13	11	9
Short-term on-the-job training	32	31	13
Total employment	100	100	14

Source: Calculated by ERS using 1996 Current Population Survey data; Bureau of Labor Statistics projections, Bureau of Labor Statistics, U.S. Department of Labor, *Monthly Labor Review*, November 1997. Education and training categories from Office of Employment Projections, BLS.

About 22 percent of nonmetro workers have jobs that require an associate's degree or higher versus 32 percent of metro workers. Looking at low-skill occupations—occupations that require either long-term (12 months or more), moderate-term (1-12 months), or short-term (up to 1 month) on-the-job training—60 percent of nonmetro workers are in low-skill jobs, whereas only 51 percent of metro workers would be classified as low-skill. The combination of these three education and training categories is considered low-skill since each is entry-level without formal education or experience requirements. BLS projects that employment will grow 12 percent in the three low-skill categories combined, just slightly less than the projected nationwide 14-percent employment growth.

New jobs will not be the only employment opportunity. In addition to the 18.6 million new jobs expected to be created by 2006, BLS projects that 32 million jobs will become open due to replacement needs, which will be in all occupational groups and at all levels of training and education.

Implications for Rural Areas

Although rural areas did well in generating jobs in the early years of this decade, job growth has softened in the last 4 years. The Asian financial crisis and low U.S. agricultural prices bring additional concern that job growth in rural areas will continue to be slow. The task now facing rural areas is to use their economic advantages, such as lower land and labor costs, to manage the labor market changes over the next decade. *[Karen S. Hamrick, 202-694-5426, khamrick@econ.ag.gov]*

More details on BLS employment growth projections are available on the Internet at

http://stats.bls.gov/emphome.htm, or in the November 1997 issue of BLS's *Monthly Labor Review*.

BLS Growth Projections and Occupational Categories

BLS projections are based on a group of assumptions about the U.S. macroeconomy that can be characterized as slightly more conservative than the October 1997 Blue Chip consensus long-range projections, the most commonly cited report of the consensus of macroeconomic forecasters. BLS expects real Gross Domestic Product (GDP) to increase 2.1 percent annually from 1996 to 2006, slightly less than the 2.3-percent growth rate achieved in 1986-96. Much of the expected slowdown in GDP growth is due to a slower-growing labor force. Over the next decade, the population distribution will shift to age groups with lower labor force participation, such as the youth labor force (age 16-24) and the labor force age 55 and older. The aging of the baby boom generation is expected to increase the median age of the labor force to 40.6 years old, the highest since 1962.

BLS expects that the foreign trade sector will be the fastest growing component of real GDP and that exports will grow faster than imports, resulting in an improved trade position. (Note, however, that the projections were done before the Asian financial crisis.) BLS assumptions include decreased real Federal spending (both defense and nondefense), a balanced Federal budget by 2006, and a surplus in the combined Federal and State budgets, leading to a downward trend in long-term interest rates.

Gross private investment is expected to increase 3.3 percent annually, faster than GDP growth. Consequently, productivity is expected to grow 1.1 percent per year, an increase over the 0.9-percent annual growth rate seen in 1986-96. In turn, real per capita disposable income is expected to increase by 1.1 percent annually as well.

BLS projects that the Hispanic population will continue to grow faster than the Black population, and by 2006, the Hispanic labor force is expected to increase its share of the total civilian labor force from 10 to 12 percent compared with a steady share of 11 percent for Black workers. Non-Hispanic White workers will make up 73 percent of the workforce, while Asians and other groups are expected to be 5 percent of the total.

BLS projections for occupations by education and training categories are done using categories developed by the Office of Employment Projections, BLS. Each occupation is placed in one category based on its requirements as follows: first professional degree (for example, law, medicine, dentistry, and clergy); doctoral degree; master's degree; work experience plus bachelor's or higher degree (mostly managerial occupations that require experience in a related nonmanagerial occupation); bachelor's degree; associate's degree; postsecondary vocational training (these occupations require a training program and may also require a licensing exam); work experience in a related occupation (some occupations are supervisory or managerial occupations, but also others require skills and experience gained in another occupation, for example police detectives, who are selected based on their experience as police patrol officers); long-term on-the-job training (occupations that usually require more than 12 months of on-the-job training or combined work experience and formal classroom instruction before workers develop the skills needed for average job performance, such as electrician, bricklayer, and machinist that normally require apprenticeships lasting up to 4 years); moderate-term on-the-job training (workers can achieve average job performance after 1 to 12 months of combined job experience and informal training, such as dental assistants, drywall installers and finishers, and machine operators); and short-term on-the-job training (workers usually can achieve average job performance in just a few days or weeks, such as cashier, bank teller, and messenger). For more information on the education and training categories, see U.S. Department of Labor, Bureau of Labor Statistics, "Occupational Projections and Training Data," Bulletin 2501, January 1998.